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African Industrialisation: Is Global Value Chain Development the Answer?

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1. Introduction

Industrialisation and industrial policy have been recently returned to policy debate in sub-Saharan Africa following a hiatus for some three decades since the implementation of Structural Adjustment Programmes in the wake of the debt crisis. However, the nature of the current debate, and the perceived role and form of industrialisation and industrial policy differs greatly from thinking that informed industrial policy in the post-liberation period of the 1960s and 70s that were rooted in classical political economy, the (structuralist) development economics of the 1950s and 60s.¹

At the level of the international financial institutions and development agencies, Justin Lin's New Structural Economics (NSE) has come to the fore as orthodox (neoclassical) theoretical justification for industrial policy in the 21st century. At the same time, Global Value Chain Development (GVCD) as the process of entry into and upgrading along transnational supply chains, has emerged in recent debates on African industrialisation. This paper investigates the conjuncture of these two approaches both in terms of their theoretical underpinnings as well as the policy conclusions that develop out of these lines of thinking. We compare both the explicit and implicit understanding of industrial development in economic growth within GVCD and NSE approaches with those from classical political economy and heterodox economics in order to assess the extent to which these approaches inform industrial strategies that can result in employment creating, self-reinforcing and rapid inclusive economic growth through the growth of manufacturing. We then draw upon the notion of the Minerals Energy Complex (MEC) as a historical political economy approach to industrial development in South Africa to assess the scope and limitations of resource based industrialisation in delivering broad-based and equitable growth in African economies today.

¹ The literature on industrial policy is vast: a good entry point into understanding the debates is provided by Akyuz and Gore (2001) as well as Kenny and Williams (2001).

2. Classical Political Economy and the causal significance of manufacturing in growth

Both the definition and the significance of industrial structure and organisation in economic growth have been variously understood. Orthodox economics places little emphasis on the composition of economic activities in terms of shares of employment, value added and output of different industrial sub-sectors - which together describe the structure of industry - and ignores the vertical structure (i.e. input-output dimension) of production. Aside from considerations of (factor) productivity – that can vary across industries and scale - all economic sectors look alike/contribute in the same way (albeit not equally in magnitude) to GDP and GDP growth. This is evident in the approach of orthodox economists to industrial policy as being universal, macro and market facilitating or towards the exploitation of potential static gains from trade or, as in the most recent turn by orthodox economists towards industrial policy, the reduction of transaction costs associated with agglomeration for example (Lin 2009).

By contrast, heterodox economists have emphasised the causal significance of industrial structure and the special role played by different industrial subsectors at different stages of industrial development and 'catch-up', together with an emphasis on the role of input-output linkages between subsectors. The developmental state literature, for example, stresses the importance of developing a domestic capital goods and industrial input sectors to serve domestic manufacturing (Woo-Cummings 1999). The economics of the Developmental State debate harks back to the theories developed by classical development economists who afforded manufacturing a unique and central role in bringing about the growth in an economy. These theorists also exalted the dynamic character of industrial development as passing through stages marked by structural shifts brought about by changing patterns of demand and sources of growth as capitalist development matures (e.g. Kaldor 1953, 1978; Kuznets 1957; Hirschman 1958; Rosenstein-Rodan 1943).

The special role ascribed to manufacturing in economic development came from the empirical observation that both productivity and employment grow at a faster rate with higher rates of growth of output owing to increasing returns, known as Verdoorn's Law. Whilst the greatest scope of scale economies lie in manufacturing, Verdoorn's relationship is applicable to industry, and the economy, as a whole since increasing economies originate, in part, through the interdependency (in terms of supply and demand) between different sectors of the economy. Theories of cumulative causation conceive of a causal link between increasing complexity and interdependence within an economy and the growth in per capita income (Kaldor 1978). The expansion of one sector has a positive knock on effect on other sectors, directly by making available cheaper (and/or higher quality) inputs or by inducing additional demand for the output of other sectors, and indirectly to the extent that this results in a chain reaction through the economy. In addition to external economies that arise through the impact on demand through backward linkages, increased economic interdependence can potentially foster economies of agglomeration, learning by doing and using (e.g. the diffusion of technological progress through the use of increasingly technologically advanced inputs), and reduced information and transaction costs. Interdependence between increases in demand and increases in supply are self-reinforcing as 'factor creation' is endogenous. Dynamic efficiency gains arise from increases in demand and the associated expansion of production which induces further demand increases as well as the role of exports as a source of autonomous demand. In this way, the pace of capital accumulation is driven by demand rather than supply.

The quantitative measurement of interdependencies between components of the production processes as backward and forward input-output linkages was proposed by Hirschman (1958). Hirschman, in line with other cumulative causation theorists, argued that a causal link runs from the density of input-output relations to the growth of an economy (i.e. the stronger the - direct and indirect - backward linkages of a particular sector to others, the stronger the growth pull effect of

that sector on the rest of the economy). Accordingly, the role of industrial policy becomes one of maximising and fostering domestic linkages as well as the expansion of exports e.g. through targeted support of sectors with the highest potential forward and backward linkages as well as ensuring domestic capacity for the supply of inputs/use of outputs from key sectors.

In addition to explosive growth that the development of an integrated industrial structure can engender, the theories of cumulative causation also imply an industrial growth path that is inclusive and equalizing. Equalising dynamics are endogenous, built into, the stages of industrialisation and economic development both as outcome and driver for industrialisation in a cumulative and causal process.

Historically, industrialisation processes of the now advanced industrial and successful late industrialising economies of East Asia have passed through consecutive 'stages' in the development of capitalism where the growth dynamic related to different tendencies in the distribution of income across society. Kaldor (1978) proposed four idealised stages of industrial development that differed in terms of which manufacturing subsector constituted the driver for rapid economic growth and the sources of demand that sustained this. In the early stages of industrial development the expansion of a domestic wage/consumer goods sector is fuelled by increasing domestic demand associated with rising wages as larger sections of the population are incorporated into the labour force. With import substitution, the increase in demand for domestic manufacturing rises faster than total consumption. As import substitution of consumer goods is completed, rapid development peters out. The second stage sees the continued expansion of the consumer goods sector through increasing exports. The third stage of industrial development is marked by a shift in the industrial structure as heavy industries, in particular capital goods industries serve the demand for investment in other manufacturing sectors, expand rapidly. The fast growth rate is therefore associated with the development of heavy industries out of the relation to growth of the rest of the economy through an integrated industrial structure. Kaldor's fourth, and final, stage of explosive growth comes from the fast rate of growth of external demand for the products of heavy industries in combination with the self-generated growth of demand caused by the economy's own expansion. With higher levels of income, the income elasticity of demand for manufactures falls off, both absolutely and relative to services (Kaldor 1966). Once export demand for domestic manufacturing is at a level of saturation, one would expect a manufacturing's share of total output to level off and decline with a reduction in the rate of growth of productivity and overall growth.

The pattern of industrial development outlined by Kaldor's stages conform to empirical observations by Kuznets (1957), Chenery and Taylor (1968), Kader (1985), Syrquin and Chenery (1989) and Haraguchi and Rezonja (2010). Deindustrialisation occurs as a consequence of the exhaustion of scale economies and the self-reinforcing growth dynamic associated with the development of a complex, integrated and interdependent economy. Premature deindustrialisation is therefore implied by the falling share of manufacturing to GDP at income levels lower than one would expect from an economy reaching subsequent stages of self-reinforcing, self-sustaining, industrial development.²

The growth experience of South Korea since the 1960s has been exemplary of 'Developmental State' (DS) model of late- or catch-up industrialisation. Whilst the concept of a developmental state both as a replicable model for catch-up industrialisation and as an analytical approach to the study of industrialisation processes of the newly industrialised economies is debatable, rapid industrialisation and economic growth in South Korea has occurred as the result of intensive state intervention. Within four decades, per capital income rose from levels comparable to those in sub-Saharan African

² See Jalilian & Weiss 2000, Tregenna 2011, and Greenwald & Stiglitz 2012 for a discussion of the (premature) deindustrialisation of developing economies especially in Africa.

countries in the 1950s to those that qualified South Korea for high income country status in the late 1990s.

In the wake of the Korean war, textiles emerged as the sector leading (re)industrialisation in South Korea. Growth of the textiles sector during this period was built on the foundation of large-scale textile plants left by Japanese colonialism and financed with American and local capital (McNamara 1992). The 1960s saw the sector insulated, through trade protection, from private foreign imports and direct foreign investments. The broad set of strategies for the promotion of industrial development identified with the DS-model began with the introduction of the first of a series of five year plan (FYP) (1962-1966) by the Second Republic. At the centre of state strategy for industrial development was the notion of 'industrial upgrading' informed by the idea that the economy should be self-sufficient – reduce reliance on foreign investment to fill the investment savings gap and capital and intermediate inputs into domestic manufacturing (Chang 1993). Cement, fertiliser and oil refining were selected as priority sectors in the first FYP. The second FYP saw chemical, steel and machinery receiving a broad gambit of state support as priority sectors aimed at solving balance of payments issues arising from the reliance upon capital goods imports (ibid). Priority sectors identified in the first and second FYPs depended, in the first instance, on demand from domestic sectors and were thus tied to the growth of the economy as a whole. The third and fourth FYPs (1972-1981) saw the continued focus on promoting heavy industries (non-ferrous metals and ship building) and the addition of electronics (ibid). The fifth and sixth FYPs saw a new focus on high-tech and high-value added manufacturing sectors (machinery, electronics, automobile, chemical, shipbuilding, and various high-tech industries such as semiconductors and biotechnology) (ibid). At the core of the successive FYPs and the Industrial Development Law (IDL) of 1986 that followed was the vision of an integrated industrial structure through the promotion of high-value added, competitive industries linked to the rest of the economy, and the managed contraction and phasing out of 'declining' sectors. In this way, textiles and dyeing industries received government support from 1979 through direct subsidies for the scrapping of old machines and the installation of new ones based on the assessment that the sector was at a satisfactory level in terms of technological capabilities but constrained by old capital stock. (Chang 1993)

The evolving state strategy for industrial development in South Korea thus conforms to the stages put forward by Kaldor, with its foundation in the consumer goods sector, followed by upstream diversification into intermediate input and capital goods sectors and then high-value, high-tech sectors, with the outcome of an integrated industrial structure that largely self-reinforcing. In contrast to South Africa, the focus of state policy on heavy industries in South Korea did not occur at the expense of, or act to undermine, rapid growth in light manufacturing. The result of developing a diversified and integrated industrial structure has been rapid economic growth without a worsening of income distribution in the 1960s and 1970s. Rapid growth in light manufacturing improved the position of low-skilled workers whilst the expansion of heavy industry drove growth in the economy and high rates of employment, South Korea thus saw an overall improvement in income inequality as measured by the Gini coefficient falling from 0.33 in 1980 to 0.28 in 1997 in the absence of any significant state policy for redistribution.

Theories of cumulative causation and the experience of South Korea and other developmental states thus inform state intervention and strategy that is both pervasive and evolving. The causal significance of industrialisation, as the development of an integrated, interdependent and evolving industrial structure driven by demand, in rapid and inclusive industrial development, informed by a macro conceptualization of capital accumulation, thus emphasises the centrality of the role of the state in directing industrialisation. Industrial policy thus involves a complementary gamut of instruments and tools at the macro and micro level that involves state direction of investment as well as private sector support. The development of competitive industries forms an important part

of industrial strategy, in contrast to industrial policy informed by ‘new structural economics’, industrial cluster research informed by ‘new economic geography’, or ‘global value chain analysis’, that will be discussed in the remainder of this paper, that equate industrialisation with the development of competitiveness or ‘competitive advantage’ in and of itself.

3. Industrial Policy and the New Structural Economics

Though questions around how industries develop are not new, the notion of industrial policy was for much of the 1990s and 2000s off the agenda of international financial institutions.³ Though building on the misleading government or market failure debate that precedes it, Lin’s New Structural Economics (NSE) hails itself as a third way of economic development thinking by returning the focus of the mainstream debate to the role and conceptualisation of industrial policy.⁴ This section explores the way in which the NSE has reformulated the industrial policy debate by reinforcing the notion of static factor endowments, a peculiar understanding of dynamic industrial development based on upgrading, within the confines of the (latent) comparative advantage framework. This reformulation reinforces a number of restrictions for industrial development strategies as well as for the role of the state; confining them to a market-facilitating role within the space created by market imperfections as per the information theoretic approach. This is in stark contrast with industrial structure and strategies informed by theories of cumulative causation within a diversified and interdependent industrial structure, and presents a number of challenges for alternative debates and formulation of industrial policy.

NSE defines industrial structure through factor endowments, but builds on the notions of comparative advantage, defined by static factor endowments, by allowing for factor endowments to change over time through upgrading from more labour and resource-intensive endowment structure to one characterised by abundant capital.⁵ This accumulation of capital and upgrading relies on factor prices that reflect the factor endowments, and consequently a “well-functioning market ...(as)... the basic institution of the economy”. (Lin 2012, p.6) The NSE thus remains firmly rooted in orthodox assumptions and mechanisms based on methodological individualism, the supremacy of the price mechanisms, and the homogeneity of sectors and the political and economic settings they operate in. The framework is selective and narrows in on firm or sector activities, dynamic shifts are possible as movement within value chains from one static endowment state to another, and

³ And as a direct consequence of structural adjustment programmes, off the agenda for countries in receipt of IMF or World Bank assistance. See for example Chang (2012, p.1) noting the change in the reading of evidence on industrial policy, revival of the infant industry argument in various guises, and increasing acceptance among orthodox economists that there are many types of market failures (beyond externalities) that may justify industrial policy. It is important to note the on-going industrial policy debate within the political economy and other heterodox traditions. See for example seminal contributions by Amsden (1989), Wade (1990) and more recently, Chang (2002), Soludo et al (2004), Ul Haque (2007) and Reinert (2007), Singh (2011). In contrast, though their contributions to the debate are important, the Harvard group writing on industrial policy remains within the confines of market failure. See for example Rodrik (2006, 2007) Hausmann, Rodrik, Sabel (2008).

⁴ The limited space within the IFI-dominated orthodox discourse for industrial policy was confined to a case of market failure arising from information or coordination imperfections and transactions costs drawing on microeconomics traditions. For example Pack & Saggi (2006) discuss three potential arguments that could justify industrial policy as: coordination failure, knowledge spillovers, Informational externalities. They conclude that there is some scope for what they term ‘new industrial policies’ based on agglomeration effects and industrial clusters. However, they find limited evidence that intervention with the market mechanisms produced spillovers into other sectors and conclude in favour of competitive and efficient markets, thus relegating industrial policy to a special ideological case of market failure.

“According to us, industrial policy is basically any type of selective intervention or government policy that attempts to alter the structure of production toward sectors that are expected to offer better prospects for economic growth than would occur in the absence of such intervention, i.e., in the market equilibrium.” (Pack & Saggi 2006, p. 2)

Likewise, in a collection of papers, messieurs Rodrik, Hausmann et al explore specific aspects of industrial policy in the context of market failures that act as impediments to structural transformation. Here structural transformation is conceived as a change in the structure of exports that occurs as countries develop and upgrade their product offering and thus their endowment.

⁵ “(The NSE) postulates that the economic structure of an economy is endogenous to its factor endowment structure and that sustained economic development is driven by changes in factor endowments and continuous technological innovation.” (Lin 2012, pp.5-6).

Upgrading is seen in specific terms as: technological innovations, infrastructure improvements or other sources of value added such as learning or productivity improvements.

diversification is contained within vertically specialised chains – creating the space for industrialisation strategies such as the global value-chain development, vertical specialisation, or resource-led industrialisation to draw on the analytical foundations of NSE.

Within this form of discourse, industrial policy is increasingly viewed as necessary for industrial upgrading, although views differ to the extent that policy supports latent but existing comparative advantage or the development of entirely new industries that deviate from comparative advantage (Lin and Chang 2009).⁶ Depending on whether the focus is market access, productivity or competitiveness improvements, or movement within a value chain, upgrading can take place, for example, through technology or skills acquisition, through a focus on costs or other production prices, or address inter-firm information or coordination problems through agglomeration or clusters, or as movement or capture of gains (through vertical specialisation) within a value chain.

The revived industrial policy debate as reformulated by the NSE reproduces a number of limitations of neoliberal microeconomics. Firstly, it returns to earlier futile attempts to define industrial policy to include both broad and specific aims (distribution, growth, sector or industry enabling or promotion, structural change education, infrastructure, export development but also supporting development of technology and learning, reducing specific input costs or improving productivity), without interrogating the particular context or the mechanisms behind the accumulation and the shift from one endowment structure to another.⁷ Second, it relies on an implicit notion that a static snapshot in the micro context can represent the continuous, complex, historically rooted change that industrialisation entails in the macro (in structure, influential forces and agents, prices, nature of production and products, linkages between industrial activities or markets etc.).⁸ Third, it relies on an assumption that a policy can be targeted or selective whether by sector or discrete economic constraint. In other words it suggests some kind of universal categorisation of the economic activity is possible, that this is adequately reflected by (factor) prices, that a single preferable path of development (upgrading) can be identified, and a suitable policy (e.g. technology or innovation) can be identified and implemented.⁹ Fourth, this implies a gross reduction in both the understanding and evolution of diversified and causally linked industrial activities and is in contrast to perspectives

⁶ A comprehensive overview of the historical and evolving debate on industrial policy is beyond the scope of this paper. A more detailed discussion, within the context of industrial/firm upgrading covering technology, learning, and other costs and constraints to the quality speed and scale of supply can be found in Lall (2000,2003), Humphrey and Schmitz (2001). An overview of the evolution of industrial policy in South Africa can be found in the contribution by Zalk (2012), and the Ashman and Cattaneo to the PERSA industrial policy cluster.

⁷ This is visible in, for example, in Warwick (2013 OECD Science, Technology and Industry Policy Paper) who presents a selective review of how the industrial policy literature ranges provides a range of definitions and objectives. Though identifying the limitations of multiple definitions and a broad target, Warwick (2013) nevertheless attempts a synthesis that combines both the broad and the specific aspects of industrial policy.

“Industrial Policy is any type of intervention or government policy that attempts to improve the business environment or to alter the structure of economic activity toward sectors, technologies or tasks that are expected to offer better prospects for economic growth or societal welfare than would occur in the absence of such intervention.” (Warwick (2013, p.16)

This quote characterises not just the limitations of attempting a unified definition of industrial policy, but the dangers in the associated thinking that a clearly definable policy can be identified to address industrial constraints. This implies that economic activities can be clearly separated and delineated in order for a targeted policy to be identified. It also makes implicit assumptions about the relevance of a separation of the role of the government or policy from other (market) forces that affect industry. A quote from Lall & Wangwe (1998, p.72) makes a similar point about diverting resources away from the allocation of market forces – bringing to question whether this renewed debate is in fact recycling old theory.

⁸ In contrast, Naude & Szirmai (2013, p.2 note that “(i) industrialization is not an automatic process – history, policies and luck matter; and (ii) that very different types of industrial policies are necessary in different contexts and different times.”

⁹ The sectors, functions or segments of the economy are defined by the underlying tensions or failure in markets (e.g. externalities, information imperfections, missing or incomplete markets). Sectors are treated as identical with no differentiation for example through increasing returns to scale or implications for employment generation, or demand linkages (such as through wages-led consumption or cross sector demand). Likewise, the solutions to these constraints utilise market mechanisms, either in supporting or helping develop information or transaction costs and constraints, using notions of price and optimisation to both capture interests and needs of industry agents, but also the processes of upgrading or value adding. This approach excludes non-economic factors such as the relations within or between industries, but also the social implications of industrialisation processes as understood by the classical political economy (e.g. redistribution of income or reducing inequality through employment).

highlighting the variation of industrial development (across sectors but also political and economic settings), and the nature and emergence of particular linkages between industrial activities.¹⁰ Diversification is seen akin to a portfolio tool, either as the result of selective promotion of activities that represent key bottlenecks (market imperfections), a source of upgrading by capturing a greater portion of a value chain or shifting into higher value added activities as directed by vertical specialisation. This ignores the important empirical work done by Imbs & Wacziarg (2003) on finding evidence for a U-shaped relationship between growth and diversification in alignment with Rosenstein-Rodan's (1943) insights about simultaneous industrialisation across multiple sectors. Fifth, a very peculiar relationship between the roles of the state and market is promoted. The role of the state is to merely facilitate or correct (not defy) market imperfections or bottlenecks that may occur at the firm level or a specific segment of a particular value chain. At the same time, it maintains the importance of state intervention to create or assist (firms and industries) in the exploitation and upgrading of comparative advantage through national innovation systems, support for entry into or upgrading within global value chains, small and medium sized enterprises and start-ups with the focus on what Naude & Szirmai (2013, p.5) see as a more "nuanced partnership between entrepreneurs and the state". The NSE continues the contradictions arising from the support from a selectively interventionist state for a free market within the framework of institutional and information imperfections driven by (a search or need to enhance) comparative advantage. This selective, static, market-led approach constrains policy to identifying ways to upgrade in the face of market imperfections in the short-run. In the long-run, the market forces and mechanisms are assumed to operate perfectly. As a result, the policy space being enabled by the NSE does not seek to develop knowledge, demand or other types of cumulative linkages or to foster the broad-based diversification of different economic activities which would enable an industrial structure that would both incorporate social objectives or generate a cumulative self-reinforcing cycle of growth across diversified sectors as was understood by (original) structuralism.¹¹

Why does this matter? The NSE presents a limited understanding of structuralism, which it attempts to marry with neoclassical approaches to industrialisation, with adverse implications for both as well as the ensuing policy debate.¹² As detailed by Fine & Waeyenberge (2013, p.19), awareness or contributions of earlier notions of structuralism have neatly been done away with. Structuralism as understood by NSE has shifted from Lin's earlier focus on "factor endowments, prices, capital-labour intensities and the composition of output" to one of "structural transformation ... (seen as) a continuous shift in the composition of production in directions dictated by latent comparative advantage" (Fine & Waeyenberge 2013, p.7). The NSE proclaiming itself as a 'third way' is an attempt to establish a new base for subsequent industrialisation strategies and debates, and to ground these in the comparative advantage framework. This reductionism is visible within the literature on GVC, VSI or Resource-led industrialisation, (as will be discussed in the next section), but

¹⁰ Naude & Szirmai (2013) showcase the contradictory and misleading framing of the industrial policy debate as two opposing views termed neoliberal and neo-structuralist. Though both are set in the comparative advantage framework, the former is defined as being critical of inward looking (orthodox) industrial policy supporting comparative advantage (alternative or heterodox views on industrial policy are ignored), the latter narrowly defined as a revival of import-substitution industrialisation (ISI), infant industry protection in response to failures of market liberalisation, and state-owned enterprises. They continue this contradiction with a characterization of China's industrial success arguably based on trial, error and accidents associated with great social costs, implying industrial policy has a darker side to be wary of, yet they acknowledge that there is a need to carefully craft and situate industrial policies to address the (new industrial policy) needs of centred around enterprises rather than states for learning, self-discovery and experimentation.

¹¹ This is visible in the terminology that has become standard in mainstream industrialisation debates. For example, competitiveness, productivity, capabilities (both production and policy), upgrading, innovation, beneficiation, are used to identify and sources of comparative advantage at a given point in time without consideration for how the given endowment structure came to be at or how it might be altered.

¹² As Rodrik (2011, p.229) suggests: "a deeper question relates to the policy implications one draws from all this. In principle, market failures need to be addressed with appropriately targeted policies. So if the problem is one of information spillovers, the first-best is to subsidize the information generating process. If the problem is lack of coordination, the first-best is for the government to bring the parties together and coordinate their investments. In practice, though, the relevant market failures cannot be always closely identified and the directly targeted remedies may not be available. The practical reality is that the type of policies structuralism calls for—whether of the traditional or the contemporary type—have to be applied in a second-best setting. And in such a setting, nothing is all that straightforward anymore."

also in how the NSE reproduces select aspects of the information theoretic approach.¹³ The NSE draws on the information theoretic approach to provide the justification for a facilitating state, not for a better incorporation of the non-economic dimensions and forces that shape these market and institutional imperfections.¹⁴ Like the ITA, the NSE also fails to interrogate how these imperfections or missing markets have emerged, let alone raise questions about the limitations of the market mechanisms.¹⁵

In sum, what the 'new' industrial policy means for (understanding) industrialisation is a reliance on static comparative advantage determined by endowments that cannot be altered. Attempts to extract greater value from fixed endowments in a globally connected world lead to notions of improving competitiveness and productivity. The connections are defined in terms of market activities (trade for inputs and outputs, costs associated with infrastructure or market rigidities such as trade protection) and market entities (enterprises, value or production chains, trade in inputs and outputs). The (microeconomic) mechanisms of optimisation of inputs and maximisation of profits for individual firms are determined by price (or cost). Competitive parity or advantage can be achieved through technology, learning, innovation, removal of constraints to market actions, with assumptions of universality and homogeneity permeating the thinking at multiple levels. These innovations, improvements, addressing of market weaknesses are measured through the ability (capacity and capability) to increase value added and upgrade in particular in the context of global value chains. The state is considered benevolent and facilitating at best, or a source of short-term correction of market failures, at worst, government failure in the forms of weak institutions, governance problems promote an environment of rent-capture. The focus is firmly on the enterprise, seen as a component in global value chains, and not in terms of the broad-based, causally significant and cumulative linkages across multiple firms, activities, sectors, industries.

These limitations not only challenge a broader understanding of the role of industrial policy and industrialisation processes, but also fail to question the core notion of comparative advantage and the bias in favour of homogenous market structures and mechanisms. Though the NSE hails itself as the third way in contrast to the preceding debate between market or government failure, the assumptions and mechanisms portrayed as 'new' instead reinforce neoclassical notions of factor endowments, the supremacy of the market, and a particular conceptualisation of industrial transformation and structure. Thus, whilst reviving industrial policy in the mainstream, the NSE constrains the space for debate across a number of theoretical and policy spheres, with severe implications for alternative approaches (theoretical, policy, methodological), and alternative conceptualisations of the roles of different agents and institutions based on notions of heterogeneity of context, history and processes.

¹³ As McCullough notes in the blog, devpolicy.org, this is old wine in new bottles.

¹⁴ This marginalises the role of non-economic structures and institutions and ignores the notion that industrial development is set in a particular social and structural context. This is visible in the way the literature on industrial 'upgrading' discusses improving capacities (physical skills/attributes/technology) and capabilities (ability to use capacity) and innovation. The underlying notion is that learning in markets can to some extent be complemented through improved education, which in many cases is supplied or supported by the state. Yet as Soludo, Ogbu & Chang (2004) note, there are behavioural and institutional characteristics that influence this learning. Capabilities are firm-specific with no predictable learning curves identical to all firms, capabilities cannot necessarily be easily transferred, and changes in technological capability do not equate to innovation. The extent to which improved capabilities can generate dynamic and cumulating patterns of industrialisation across the boundaries of set firms or sectors depends heavily also on economic but also social structures. If cheap labour exists, labour-intensive activities may emerge but do not evolve into more complex processes or engender technology (innovation) even in the presence of support for skills upgrading, learning, or acquisition of technology. Cultural and social factors also influence the success of capability and capacity upgrading and innovation yet are not reflected in the industrialisation is driven by comparative advantage.

¹⁵ In particular the assumptions about the supreme ability of prices to embody information (for example about varying labour characteristics such as skills), or to explain how and within what political or economic conditions the current composition of production and factor endowments emerged in.

The next section highlights these challenges within the conjuncture of the industrial policy debate justified by neoclassical economics, and theoretical frameworks around industrialisation within a chain construct (intra-chain upgrading).

4. From Global Value Chain Development to Vertical Specialisation and Resource Based Industrialisation

Global Value Chain Development (GVCD) as a strategy for industrial development in the current epoch has come to the fore with the recent re-emergence of the industrial policy debate. The promotion of GVCD in the context of sub-Saharan Africa has taken an opportunistic turn towards the promotion of value chains linked to natural resource endowments in line with the rise of the New Structural Economics as intellectual justification for the current industrial policy approach of the World Bank and other international organisations that amounts to state support for the promotion of comparative advantage (Morris et. al. 2012; Fine & Van Waeyenberge 2012).

From Global Value Chains....

The emergence of GVCD as a strategy for (industrial) development, however, precedes the recent return to industrial policy, and emerges directly out of GVC analysis. GVC analysis constitutes a strand of research in the field of chain studies that emerged in the 1990s based upon the observation that globalisation of production, defined as the trend in increasing international dispersion of production activities and their functional integration, and denoted as the rise of global value chains, appears as a novel and characteristic phenomenon in contemporary capitalism and a significant shift in industrialization on a world scale (Gereffi and Korzeniewicz 1994, Dicken 1998):

“Economic globalization has been accompanied by flexible specialization, or the appearance of new, technologically dynamic forms of organization...Capitalism today thus entails the detailed disaggregation of stages of production and consumption across national boundaries, under the organizational structure of densely networked firms and enterprises” (Gereffi and Koreniewicz 1994, p1)

Hopkins and Wallerstein coined the term “commodity chain” to mean “a network of labour and production processes whose end result is a finished commodity” (Hopkins and Wallerstein 1986, p 159). Within the World Systems conceptualisation of the world economy/accumulation on a global scale, a commodity chain is understood as an intermediate unit of analysis, where the totality of all commodity chains makes up the world system. The commodity chain analysis, in its original usage, thus constitutes more than a simple analytical tool with which to understand the supply and demand of particular products, rather, the chain construct is a heuristic for gaining analytical purchase on these structural connections, the study of which illuminates the evolution of the global division and integration of labour into the world system over time (Bair 2008, p.437).

Global commodity chain analysis, from which GVC takes a major part of its analytical content and central organising concepts, emerged as distinct analytical approach in 1994 with the publication of “Commodity Chains and Global Capitalism” edited by Gereffi and

Korzeniewicz. The book launches the concept of the commodity chain itself as 'global' and an object of analysis in and of itself. In contrast to the commodity chain as heuristic device deployed in the analysis of the evolution of the world capitalism economy of world-systems research, GCC (and GVC) analysis is concerned with analysing the organisational forms of contemporary global industries and the internal dynamics of chains themselves from a firm centric perspective. (Bair 2008)

GVC analysis was launched in 2001 with the publication of "Introduction: globalisation, value chains, and development" in the IDS bulletin, authored by Gereffi, Humphrey, Kaplinsky & Sturgeon¹⁶. More than a decisive change in nomenclature to aid communication between researchers across multiple disciplines, where "a proliferation of overlapping names and concepts" (Gereffi et. al 2001, p2) had arisen, GVC analysis constitutes both a stream within chain studies more broadly¹⁷ as well as a departure in terms of theoretical orientation from a macro-sociological (concerned with analysis of historical and contemporary dynamics within, and forms of, capitalism as a systemic whole) to a micro-oriented approach that "focuses on the coordination of inter-firm dyads in a global value chain" (Bair 2008, p.339)¹⁸. In this way, it forms a distinct chain approach as the study of the opportunities and challenges faced by developing country firms in terms of their ability to capture value-added/rents through processes of upgrading (to higher value added activities) in relation to different forms of 'chain governance'.

The transition from GCC to GVC involved a convergence between the conclusions on upgrading and development in GVC analysis of the 1990s and early 2000s (and GCC analysis before that) and those drawn from the contemporaneous literature on industrial clusters. The launch of GVC analysis resulted from the coming together of key authors in the respective fields of GVC and industrial cluster analyses, predominantly based at the IDS, Sussex. This saw the convergence in theoretical content between GVC and industrial cluster analyses, heavily influenced by transaction cost economics, in the theoretical development of the former¹⁹. The central analytical concept of governance, defined as the authority and power relationships that affect how resources flow along the length of the chain by Gereffi (1994) has been replaced by a narrower conception of governance as the ability of certain firms in the chain to coordinate activities and shape inter-firm relationships along the chain with transaction costs as the central determining factor affecting the organisational and spatial configuration of a chain. (Gereffi, Humphrey & Sturgeon 2005; Bair 2008)

The policy conclusions from industrial cluster research in the 1990s were highly influential and informed a great number of World Bank and other development agencies' local development projects and programmes. Emphasis was on local strategies for firm upgrading: **selective assistance for local enterprise; supporting local institutions that can work towards institutionalise intra- and inter-firm learning processes both through direct links with firms in world markets and learning processes associated with agglomeration.**

¹⁶ Following the Rockefeller Foundation funded "Global Value Chains Workshop" that took place in Bellagio, Italy, 25 September – 1 October 2000.

¹⁷ Chain studies refer to the range of literature that deploys various chain conceptions to the empirical study of the chain of activities that connect production to consumption of a specific commodity.

¹⁸ See Bair 2005, 2008 for a thorough account of the intellectual heritage and developments in chain studies.

¹⁹ This is most explicitly illustrated in the publication of the IDS working paper, 'Governance and Upgrading: Linking Industrial Cluster and Global Value Chain Research', by Humphrey and Schmitz (2000).

Industrial cluster development, and later GVC development, served as an acceptable form of support for industrialisation at a time when industrial policy was firmly off the agenda. By focussing on key micro-processes that underpin but do not wholly constitute industrialisation as envisaged from the perspective of classical political economy traditions, industrial policy has been recast entirely in terms of local level support for the private sector (e.g. support for SMEs and entrepreneurial development). In turn, the view of industrialisation as critical in the process of self-sustaining, rapid capital accumulation owing to the causal significance of industrial structure in economic growth has given way to a view of industrialisation as increasing shares of manufacturing value added in GDP, and firm competitiveness in and of itself.

By defining governance as dyadic coordination, GVC researchers have been “able to operationalize a theory of GVC governance – that is, that specify a particular relationship between a set of independent variables (industry-level characteristics of the value chain) and the dependent variable (governance structure)” (Bair 2008, p.353). It is precisely this refocus away from forms of power other than that which affects the ability to explicitly coordinate chain activities and influence the relative power of firm-level actors in the chain that allows GVC analysis to readily inform development strategy. By scaling down “the concept of governance from a characterization of the chain in its entirety to a description of the mode of coordination prevailing at a particular link in the chain” (Bair 2008, p.354), GVC analysis scales down the challenges faced by different chain actors to capture value added/rents through upgrading as well as the role of the state becomes limited to supporting the private sector in their attempts to enter global value chains and upgrade.

...to Vertically Specialised Industrial Development

“The growing importance of export-oriented industrialisation has made integration into the global economy virtually synonymous with development for a number of nations.” (Gereffi et. Al. 2001, p1)

As industrial policy ceased to be a dirty word outside of the confines of local development, Global Value Chain Development has become explicitly linked to industrialisation and industrial policy by its key theorists/scholars as well as international organisations. Milberg, Jiang & Gereffi (2013), in a recent paper prepared for UNCTAD, define vertical specialisation industrialisation as the process of firm “upgrading into higher value added functions within a given chain or into new chains that generate more value added” (p.4).

An apparent consensus has arisen around the imperative for developing countries to industrialise that has arisen out of shifts in production and trade patterns” (UNECA 2013, p 3), namely the rise of global value chains in the organisation of production, and the direct consequence this has had on the intensification of competitive pressures faced by developing country suppliers as firms from more countries enter global value chains. Raising **competitiveness** thus becomes a matter of survival for developing country firms and industries. This is in contrast to cumulative causality scholars and the policy makers in much of the Third World during the post-WWII period, now collectively termed developmental

states, where rapid industrialisation seen to be critical in order to meet the imperative of rapid economic growth and broad based development in the process of 'catch-up'²⁰

As in GVC analysis, the cause of the problem of heightened competition offers its own solution: raising competitiveness and developing competitive advantage through chain upgrading. Industrial policy recommendations coming out of VSI thus focuses "more on linkages to a set of value chain actors" and "less on the national economy" (Milberg. et. al. 2013, p4). VSI informed policy recommendations include those that come out of GVC or industrial cluster research and emphasise a policy focus on regulating links to the global economy through trade, foreign direct investment and exchange rate policies.

Where GVCD and industrial cluster development were presented as possible paths towards (local) industrial development (Naude & Szirmai 2011, Bigsten & Söderbom 2010, Zeng 2008)), VSI has been presented by Milberg, Jiang and Gereffi (2013) as the only option open to developing countries in the current epoch, 'the era of vertically specialized industrialisation', in which industrial development strategies and policies of the past, including ISI and EOI, would be impossible owing to the dominance of global value chains in global trade and production. By doing this, they explicitly reformulate the process and trajectory of industrial development in terms of degrees of vertical specialisation and upgrading at different levels of income²¹. For Milberg et. al. different stages of vertically specialised industrial development necessitate different types of industrial policy to meet different types of challenges. At early stages of industrial development industrial policy can promote entry into value chains and export market access, for example by establishing export processing zones. In order to promote successful upgrading, policy support needs to address challenges posed by the ability for MNC lead firms to engender competition across developing country suppliers, or intra-chain competition over the distribution of rents since upgrading implies the capture of rents from someone else.

GVC analysis, its application to industrial development and the explicit broadening of its scope to contemporary industrialisation processes and industrial policy in VSI has resulted in the reformulation of the role of industrialisation in economic growth and development and associated industrial policy in a number of ways:

First, the causal significance of industry as the engine of growth has been replaced by the imperative to increase competitiveness at the level of firms and industries as the guiding principle for, and goal of, industrial policy. This together with the almost exclusive focus on the vertical nature of the chain in GVC and VSI has resulted in the framing of industrialisation processes and policies entirely around the nature of intra-chain competition over rents and its implications for upgrading, and competition amongst suppliers at different nodes on the chain. This reflects a broader shift from a macro

²⁰ Developmental state theory recognises the specific challenges for late-industrialisation in a stratified global economy. (See for example Chang 2002, Fine 2011). For catching up, see various works by Amsden (1997, 2001),

²¹ Milberg et al. (2013) posit that a U-shaped relation exists between vertical specialisation and value added per worker. They argue that vertical specialisation tends to be high in early phases of industrialisation as countries enter global value chains as suppliers in low-value added nodes of the chain. As firms begin to upgrade, vertical specialisation will fall with increasing value added. Once high value added production is reached, vertical specialisation will increase again as firms focus on core competencies and outsource lower value added components of production to reduce costs in response to shareholder pressure on profits.

conceptualisation of industrialisation within capitalist accumulation to its redefinition in terms of microeconomic concepts such as competitiveness and transaction costs.

Second, proponents of VSI advocate the disintegration of industry as policy objective. “With GVCs, competitive improvements come not with the development of the fully integrated scope of activities in an industry, but by moving into higher valued tasks associated with the industry.” (Milberg et. al. 28) Apart from issues around the adequacy of domestic demand and a view that states are powerless in the face of multinationals, there are no compelling reasons as to why competitive improvements might not be achieved within a diversified and integrated industrial structure²².

Third, by focussing only on the vertical nature of the chain and intra-chain relations as determining upgrading outcomes, GVC analysis emphasise the power of lead firms (MNCs) in shaping chain relations and outcomes and as consequence, the futility of the role of the state and national industrial policy. The policy conclusions of GVC and VSI relegate state intervention to supporting the private sector as opposed to directing it, as was the case for the Developmental State Paradigm.

Fourth, focus on vertical dimensions of the chain and vertical specialisation relies entirely upon external demand with limited domestic growth pull effects, except in terms of intra-chain diversification such as the case of developing upstream production of inputs. Rather than promote the type of interconnected, interdependent, complex industrial structure that Kaldor saw as key to generating reinforcing and exponential growth dynamics, promotion of intra-chain connectedness and vertical specialisation limits the scope for complexity.

Fifth, GVC and VSI, are concerned with how different industries will tend to different forms of chain organisation and governance structures and the extent to which this opens up, or pose challenges for, the possibility for different types upgrading. In consequence, industrial policy is formulated with industry and activity specificity in mind but otherwise universally applicable. This is a direct consequence of the way in which “theory of GVC governance explicitly brackets the salience of institutional context and path-dependent dynamics” (Bair 2008, p.357).

Sixth, while stages posited by Milberg et. al. (2013) echo the stages of industrial development put forward by Kaldor, the stages in VSI present themselves as necessary and sequential goal posts of greater value addition via value chain upgrading and discarding of lower value activities in a linear process of development. The VSI notion of stages has no causal content. Milberg et. al. (2013) emphasise the mounting challenges developing country firms face in upgrading; *one thing does not necessarily lead to another*²³. By contrast, as discussed in section 2, the idealised stages put forward by Kaldor are based

²² China is presented by Milberg et. al. (2013) as the prime example of successful VSI although the evidence that they present stands in contradiction to their vision of VSI. First, the authors explicitly state that the policies of China are closer to those of other East Asian developmental states and stress the role of domestic demand in bringing about successful industrialisation.

²³ In reference to the book by Morris et al. (2012)

upon shifts in industrial structure and sources of demand that are conditioned by and develop out of the previous stage. While VSI placed focus on vertically linked industrial activities, emphasis is on external markets from the outset. In this way, VSI is devoid of the growth pull effects that come with the development of a diversified, interdependent and integrated industrial structure.

Moreover, the model of VSI is not substantiated by historical industrialisation processes or policies. Successful industrialisation has always taken place with substantial state intervention in the development of a diversified and integrated industrial base. Whilst presented as novel, vertical and horizontal integration and disintegration of production have been part of industrialisation processes for a long time. Whilst there is an apparent upward trend in global value chains that results in part from the acceleration of outsourcing by U.S. and some European manufacturers as the outcome of the financialisation and associated changes in financial imperatives faced by corporates in the U.S and Europe, there is no reason given for why such a trend would continue.

...and Resource Based Industrialisation

In the context of the African continent, recent debate has taken the form of 'resource-based industrialisation' (RBI) as the promotion of higher value-added activities linked to natural resources (both of and in the earth), heavily influenced by Global Value Chain research²⁴.

Growing world demand for commodities, the commodity price boom, and recent discoveries of new natural resource reserves on the continent (e.g. off-shore gas in Mozambique and Tanzania and oil in Ghana), have resulted in the revisiting of old debates around commodity dependency and development with the apparent setting free of African countries from the shackles of the 'resource curse'²⁵ and the promise of RBI in its place, i.e. the promotion of vertical upgrading on the basis of natural endowments. The expected persistence of strong demand for African commodities from China, and other fast growing economies outside of the global north, are seen to provide the opportunities for resource exporting countries to upgrade and diversify vertically along natural resource chains that are relatively underexploited on the continent in comparison with Asian or Latin American countries where concentration indices are 0.12 and 0.13 respectively (see figure 1). (UNECA 2013) Resource-based industrialisation thus reflects a convergence between GVCD and vertical specialisation industrialisation on the one hand and New Structural Economics on the other where notions of value chain upgrading are coherent with the law of comparative advantage and policy implications almost entirely overlap.

²⁴ The intellectual justification being provided by prominent GVC scholars including Kaplinsky (2000), Morris and Barnes (2008) on textiles and clothing and Morris, Kaplinsky and Kaplan (2012)

²⁵ Resource curse here refers collectively to the Prebisch-Singer hypothesis, Dutch-Disease and the narrower resource curse literature based upon arguments of the New Institutional Economics.

Figure 1 Export Dependence and diversification

Country	Export product concentration index (a higher value represents higher dependence on one product)	Export product diversification index (a higher value represents less diversification of exports)	Top three exports (% of total merchandise exports)	Primary commodities % merchandise exports (including food commodities, precious stones and gold). Data source varies from 2007-2011 with exception of Eritrea (2003).
Southern Africa				
Angola	0.97	0.8		
Botswana	0.79	0.89	83% Diamonds excl. ind'l, Nickel mattes, Gold non-monetary excl ores.	88
Lesotho	0.33	0.83	10% non-alcoh. Beverage, wool, diamonds excl. ind'l	15
Malawi	0.53	0.84	53% tobacco, sugars raw (beet or cane)	90
Mauritius	0.25	0.71	26% fish, raw and other sugars	39
Mozambique	0.51	0.81	70% Aluminium and alloys, electric current, natural gas	91
Namibia	0.22	0.77	39% Diamonds excl ind'l, uranium, fish	71
South Africa	0.16	0.6	27% platinum, other coal, gold non-monetary	61
Swaziland	0.28	0.78	18% Sugars, chem. woodpulp, soda, wood	30
Zambia	0.63	0.85	76% copper (anodes, alloys, plate, ores and concentrates)	91
Zimbabwe	0.2	0.73	36% nickel mattes, sinters, tobacco, gold (non-monetary excl. ores)	70
East Africa				
Burundi	0.54	0.75	79% coffee, gold, tea	92
Comoros	0.51	0.75	14% Spices	14
Democratic Republic of Congo	0.43	0.78		
Djibouti	0.35	0.61	18% Milk, food preparations, palm oil	24
Eritrea	0.65	0.83	27% Fish, bone, horn, ivory coral	68
Ethiopia	0.36	0.79	55% coffee, sesame, other vegetables	90
Kenya	0.18	0.65	35% tea, cut flowers, other vegetables	62
Madagascar	0.21	0.77	15% crustaceans, spices, ore etc. (molybdenum)	35
Rwanda	0.4	0.84	55% tin ores, coffee, tea	81
Tanzania	0.19	0.77	58% gold, prec metals, manganese ores and concentrates	84
Uganda	0.21	0.73	27% coffee, fish, tea	64
Seychelles	0.51	0.83	41% fish, fat, oils.	42
Somalia	0.33	0.7		

Source: UNECA / AU (2013) "Making the Most of Africa's Commodities: Industrializing for Growth, Jobs and Economic Transformation: Economic Report on Africa", UNECA Addis Ababa, p.77, p. 120-124

Proponents of RBI, most notable in the recent work of Morris et al. (2012), the UNECA (2013) report and Jourdan (2001?no date), recognise the imperative for African countries to industrialise as resulting from the global context of heightened competition (via value chains) and the corroboration of the inverted U relation between manufacturing value added (MVA) and per capita income, echoing Kuznets and others discussed above (Morris et al. 2012). However, in contrast to scholars of the classical political economy tradition, the

inverted U relation is taken as empirical fact rather than theorised; no causal relation is attributed to industrialisation in relation to economic growth.²⁶

The tendency for Morris et al. (2012) to revisit 'old' ideas and apply them in new ways, torn from a macro theory of capital accumulation, is also evident in their appeal to Hirschman and the role of input-output linkages in industrial processes. While noting the variety of linkages identified by Hirschman as significant in the process of industrialisation, Morris et al. (2012) focus only on vertical production linkages. Moreover, rather than linkages being understood as one dimension of interdependencies within a demand-centred cumulative causal process, they are viewed in limited scope as a source of scale economies. The emphasis of Morris et al. (2012) on the development of linked industries is thus limited to the vertical chain and the opportunities that that arise within it rather than as a part of a broader strategy of industrial development based on cumulative causal processes.

The position of Morris et al. (2012) in relation to commodity dependence/resource curse debates is one of optimism justified by favourable price conditions on world markets²⁷. While it is beyond the scope of this paper to discuss recent and historical debates, it should be noted that it refers to numerous and distinct processes, the existence and nature of which are heavily contested, historically and institutionally contingent as well as conditioned on, as well as shaping, the productive structure of an economy. (Di John 2011; Yeats 1991) For Morris et al. (2012), potential challenges for industrialisation identified in the various resource curse literatures are simply swept aside rather than assessed in relation to specific sectors, industries, historical and institutional contexts. One such example is the way in which Morris et al. (2012) deal with traditional arguments that resource-based development result in enclaves with limited positive spill-overs into the rest of the economy. Here, Morris et al. (2012) argue that the tendency towards enclaves is both overstated and outdated. Moreover, such problems can be solved through the development of shared infrastructure and technological capabilities that can support both upstream (capital equipment and other inputs) and downstream (beneficiation) linkage development. In fact, the key policy conclusions drawn from RBI are the development of shared infrastructure and technological capabilities, echoing the policy recommendations coming from industrial cluster research and GVCD.

In terms of an understanding of the role, process and dynamics of industrialisation, RBI carries forward the implications discussed above in relation to GVCD and VSI. While proponents of RBI base their arguments upon a number of concepts coming from classical political economy, most notably the role of input-output linkages as building upon existing potential investment demand, their deployment within RBI is relegated to micro conceptions of industrial organisation and comparative static analysis divorced from

²⁶ Moreover, the appeal to the apparent empirical correlation between manufacturing and economic development might be questioned in relation to differences in industrialisation processes across countries and overtime. Szirmai (2012) argues that ambiguities arise from: the way in which manufacturing contributions are measured (e.g. growth accounting, econometric techniques), in particular the difficulties in capturing external and spillover effects and of dynamic sectors; the way in which the sequence of structural change is different for latecomer developing countries than it was for the early industrialisers; the period in time during which technological and income catch-up occurred (with the period between 1950-1973 cited as offering special opportunities through absorption of US-style mass production manufacturing); the rise of technologies such as ICT not specific to manufacturing, but also relevant to services; whether the growth is categorised as normal, accelerating or decelerating.

²⁷ The authors refer not only to the price of natural resource based output but also an apparent downward trend in manufactured products from developing countries. (Morris et. al. 2012)

dynamic macro processes of capital accumulation. Rather than contributing to cumulative causal processes, input-output linkages serve as stepping stones towards higher-value added activities.

It is not the intention of this paper to discredit or argue against state intervention in the development of resource linked economic activities. Both the development of downstream value addition in the form of beneficiation and other forms of processing, and upstream linked industries, provide great potential for value addition and greater contributions to GDP. The development of resource linked industries means that economies can “make the most” of a country's static endowments, allowing economies to gain from the production and sale of “low-hanging fruit” (Morris et al. 2012 p.208) as well as the development of upstream and downstream linkages and diversify²⁸. Rather, our main contention is that RBI, in and of itself, does not amount to the type of industrialisation strategy that can bring about the type of broad based, self-sustaining, employment generating and equalising economic growth envisaged by cumulative causation theorists. As will be discussed in the next section, industrial development based solely on the development of linked industries within resource sectors without integrating these sectors into a broader industrial structure is likely to result in skewed industrial development that fails to absorb labour to the extent that wages rise sufficiently to support domestic demand and improve equality. The extent to which industrial policy can translate to broader based development will depend upon the fiscal capacity of the state to appropriate mineral rents, the ownership structure of the mineral sector and the ability of the state to develop dual-track growth strategies (Di John 2012, p.176).

Moreover, as will be suggested in the next section, the historical and political context, the nature of the resource both within the domestic economy and with respect to the global economy as well as resource specificities and the specific institutional and industrial structure of economies in question are all critical in relation both to the nature of policy formulation and implementation and their outcome. These critical issues are largely left aside in the current approaches to resource-led industrialisation that remain firmly focused on entry and value capture within global value chains, and selective about their understanding of the nature and drivers of linkages.

5. The political economy of resource based development in South Africa

5.1 The MEC and South Africa's industrial structure

By taking the case of historical industrial development in South Africa, this section illustrates how the nature and extent of (input-output) linkages, fostered through industrial policy, have shaped industrial structure and its hysteric path and in consequence the nature of persistent structural unemployment (marked by the inability for the economy to absorb labour) and inequality.

²⁸ Here the portfolio concept of risk informs the need for a country to diversify exports rather than being dependent on a small number of exports for foreign exchange earnings. This is in contrast to the notion of creating a broad based, diversified, yet integrated industrial structure.

The case of historical industrialisation in South Africa can be seen as closely following the strategy promoted by Morris et al. (2012) and UNECA (2013) discussed in the previous section. It is beyond the scope of this paper to discuss the political economy of industrial policy and development in South Africa that informed the motivation and form of industrial policy during the apartheid period²⁹. For the purpose of debate with the promotion of resource based industrialisation in the context of African industrialisation today, we focus on the form of industrial policy and development itself, namely, the systematic promotion of industries linked to mining and ad hoc intervention in sectors outside of the so called “minerals energy complex” (MEC) (Fine and Rustonjee 1996).

Industrial development has been closely tied to mining throughout the history of capitalist development in South Africa. The centrality of mining activities in the South African Economy in the turn of the 20th Century shaped the development of the manufacturing sector through diversification and extension of activities by the mining conglomerates and state owned enterprises. These activities included downstream mineral processing, engineering, the steel and chemicals sector, other manufacturing sectors, and banking. Heavy state intervention in industry between the 1950s and 1980 was focussed on the promotion and development of large scale, capital intensive, sectors linked to extractive industries. From this emerged, what Fine and Rustonjee (1996) referred to as the ‘MEC core’, a set of industries identified by very strong input-output linkages with each other and weak linkages that serve as the core site of capital accumulation³⁰. These are:

- Coal mining
- Gold and Uranium mining
- Other mining
- Petroleum, chemicals, rubber and plastic
- Non-metallic minerals
- Basic iron and steel
- Basic non-ferrous metals
- Metal products excluding machinery
- Machinery and equipment
- Electricity, gas and steam
- Transport and storage

The cohesion of the MEC is illustrated by figure 2 which shows that 70% of productive inputs into the MEC sectors come from the MEC core itself and 56% of intermediate output from MEC sectors goes back into the MEC core as inputs. By contrast, only 25% of intermediate inputs into non-MEC manufacturing sectors are sourced from the MEC and only 10% of intermediate output from non-MEC sectors is fed into MEC sectors as inputs.

²⁹ See Fine and Rustonjee (1996), Ashman, Fine and Newman (2013), and Clarke (1994) for political economy analyses of industrial policy and industrial development in South Africa.

³⁰ In addition to the strong material interdependencies of the MEC core sectors, these sectors exhibited highly concentrated ownership. While the focus of this paper is on the input-output dimension of the MEC defined as a core set of industries, it should be noted that the MEC is an analytical concept that developed out of, and deployed within, an analysis of industrial development of South Africa historically that simultaneously focusses on different dimensions of interdependencies between fractions of capital, industrial development and the state.

It is worth noting that the coherence and cohesion of the MEC has persisted throughout the four decades since 1970. The strength of direct forward and backward linkages between MEC-subsectors has remained remarkably stable since 1970. This cohesion and coherence has resulted, not only in determining the dynamics of its own expansion and development via some of the growth/demand pull mechanisms that underlie cumulative causation but also in conditioning the nature of industrial development outside of the MEC-core. Because of its lack of integration with economic activities more broadly³¹, expansion of the MEC-core has occurred in relative isolation from, and at the expense of, non-MEC sectors, in particular labour intensive manufacturing of consumer goods - the rapid expansion of which typified the early stages of industrial development historically as discussed above. A major corollary of this has been an industrial structure skewed in favour of capital intensive, heavy, industries that have made up between 50 and 62 per cent of total manufacturing output since the 1970s (see figure 3)³², and as consequence, persistent structural unemployment and worsening inequality in the absence of structural transformation of the economy.

Figure 2 Material interdependencies within (and without) the MEC core in 2010

Share of intermediate inputs from/output to MEC (R millions in constant 2005-prices)	Intermediate inputs from MEC	% intermediate inputs	Intermediate outputs to MEC	% intermediate output
Agriculture, forestry and fishing	33448	55%	1600	2%
Coal mining	6559	74%	12177	93%
Gold and uranium ore mining	2141	58%	46	5%
Other mining	41873	79%	76920	84%
Manufacturing	441579	50%	287648	34%
Food, beverages and tobacco	19045	13%	1270	3%
Textiles, clothing and leather	6917	23%	1925	9%
Wood and paper; publishing and printing	18207	24%	5716	6%
Coke and refined petroleum products	66654	88%	49417	54%
Basic chemicals	47612	81%	50432	67%
Other chemicals and man-made fibres	41494	71%	28564	41%
Rubber products	5473	63%	5460	56%
Plastic products	11139	71%	9342	32%
Non-metallic minerals	12936	71%	2971	11%
Basic iron and steel	72208	82%	44728	62%
Basic non-ferrous metals	18437	88%	17117	63%
Metal products excluding machinery	28279	75%	16764	46%
Machinery and equipment	24281	70%	26332	55%
Electrical machinery and apparatus	15240	57%	6252	20%
Radio, TV, instruments, watches and clocks	1424	16%	375	2%
Transport equipment	30020	22%	17539	15%
Furniture and other manufacturing	20543	57%	2331	13%
Electricity, gas and steam	10839	43%	18988	55%
Construction (contractors)	56786	36%	6160	8%
Trade, catering and accommodation services	36452	18%	48040	24%

³¹ Except through common ownership within the conglomerate structure that prevailed over the economy until the transition from apartheid.

³² At the sectoral level, the MEC thus provides an analytical description of historical industrial development in South Africa as skewed in favour of mining and related industry and the failure of the emergence of diversified industrial base.

Transport and storage	39514	36%	70181	51%
Communication	13988	20%	7545	8%
Financial intermediation, insurance, real estate and business services	32110	10%	70211	15%
Community, social and personal services	45194	16%	16316	12%
MEC	429439	70%	429439	56%
MEC manufacturing	379086	79%	251127	52%
non-MEC manufacturing	113067	25%	36521	10%
Services (excl. general government and transport and storage)	103053	15%	142015	17%
Other sectors	976675	59%	9786	4%

Data Source: Quantec (RSA Standardised Industry) 2011

Figure 3 Share of sectoral net value of output in total manufacturing 1924-2010

	1924/25 ⁺	1948/49 ⁺	1975/76 ⁺	1975 ⁺	1990 ⁺	2000 ⁺	2010 ⁺
Food, beverages and tobacco	32.4	19	14.1	19.8	21.2	16.7	16.5
Textile, clothing, leather, footwear	10	15.2	10.4	6.2	5.9	4.8	3.7
Wood and furniture	6.9	6.4	3.2	3.1	3.1	3.3	3.3
Paper, printing and publishing	11.2	7.7	7.7	6.1	7.3	6.8	6.4
Other manufacturing	2.7	3.4	3.3	3.1	5.8	4.5	3.9
Total light industry	63.2	51.7	38.7	38.4	43.3	36.1	33.8
Chemicals and chemical products	12.1	9.5	11.4	11.5	16.8	23.9	23.9
Pottery, glass, other non-metallic minerals	7	6	5.3	4.7	4.0	2.5	2.7
Basic metals industries	8.9	17.6	13	8.5	8.6	9.8	11.7
Metal products and machinery	3.3	5	22.7	18.1	12.4	9.4	8.9
Transport equipment	5.3	7.8	7.2	13.0	9.6	12.9	13.9
Rubber products	0.2	2.4	1.7	0.9	1.2	1.1	0.9
Total heavy industry	36.8	48.4	61.3	56.8	52.6	59.7	61.9
Electrical machinery & apparatus, radio, TV, instruments and clocks	/-	-	-	4.8	4.0	4.2	4.2
Total manufacturing	100	100	100	100	100	100	100

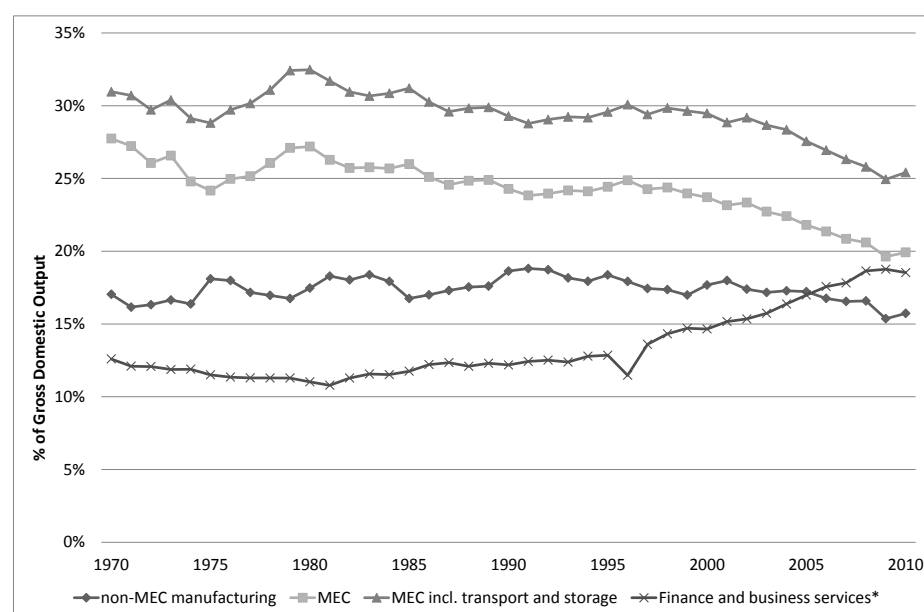
* Figures taken from Feinstein (2005)

+ Authors own calculations based upon SASSID data for total output (intermediate + final in current prices) figures for industrial subsectors

Taken together, the MEC sectors continue to dominate industrial output and exports (see figures 2 and 3). Whilst modest growth in GDP has occurred since 1994, this has occurred in tandem with worsening unemployment. It is argued here that the persistently high unemployment rate has its roots in industrial structure that developed out of industrial policy and development in the apartheid period. The related rapid decline of a number of labour intensive non-MEC manufacturing sectors since 1994 can in part be seen as a result of their weak integration with the broader industrial structure and lack of industrial policy

intervention to manage the winding down of sunset industries or retooling and capital upgrading of others (as had been the case in South Korea in relation to textiles and clothing sectors for example).³³ Investment in MEC sectors has also been stagnant, with the exception of platinum, with output earnings largely propped up by high commodity prices. This does point to the view that South Africa has not ‘made the most of commodities’ as argued by Morris et al. (2012). There are clear gains to be made in terms of contribution to GDP and employment generation from developing forward and backward linkages to extractive industries, in other words, the strengthening of the MEC core. The main concern here is whether this could translate to structural transformation of the type that would result in broader based industrialisation as the driver for inclusive growth.

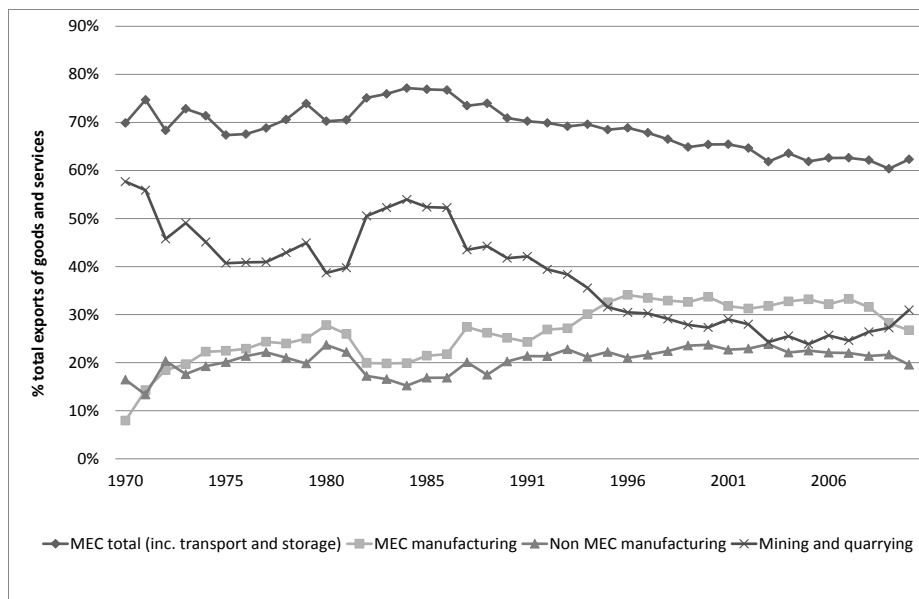
Figure 4 Contribution of MEC and non-MEC sectors to gross domestic output



Source: Quantec (RSA Standardised Industry) 2011

³³ There are several other causes of decline in labour-intensive industries such as external competitive pressures, shifts in investment patterns, and changes to employment structures. These are acknowledged but beyond the scope of this paper. An overview discussion of wage-reductions to improve productivity and competitiveness, in particular in response to capital account and trade liberalisation can be found in UNCTAD (2001), “Economic Development in Africa: Performance, Prospects and Policy issues”.

Figure 5 Contribution of MEC and non-MEC sectors to exports



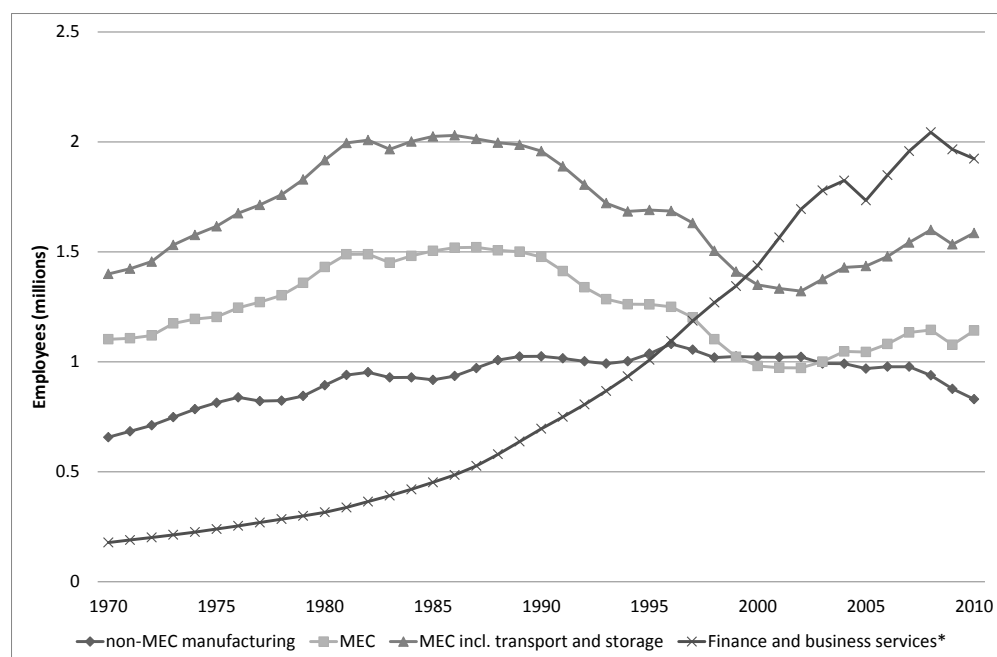
Source: Quantec (RSA Standardised Industry) 2011

The capital intensity of MEC-subsectors means that they have little capacity to absorb labour. Moreover, the relatively weak forward and backward linkages of MEC-subsectors with non-MEC sectors have meant that expansion of the MEC has weak employment multipliers, i.e. the potential to stimulate other employment generating activities. The problem of unemployment can thus be understood as structural, with deep roots in the history of industrial development in South Africa.

Recent studies by Tregenna (2008) and CSID (2010) found that non-MEC manufacturing sectors such as furniture, leather and leather products, food and beverages, textiles and wearing apparel have the highest employment multipliers and backward linkages.

Figure 6. shows the sectoral shares of total employment. Employment within the MEC core has declined since the late 1980s from 1.4 million in 1980 (1.9 million if transport and storage is included) to 1.1 million in 2010 (1.6 million including transport and storage sectors). Employment has fallen in absolute terms across non-MEC manufacturing as a whole. The number of employees employed in each subsector was lower in 2010 compared with 1990 in all except for other manufactures, printing, publishing and recorded media, and wood and wood products and beverages. So whilst, developing domestic industries linked to resources will certainly raise employment and output, such a strategy will be limited in terms of solving South Africa's problems of unemployment and inequality that emerge out of its industrial structure, unless it is part of a broader industrial strategy that recognises the need for a broad based, diversified and integrated industrial structure. The promotion of resource-based development reinforces rather than transforms the prevailing economic structure.

Figure 6 Contribution of MEC and non-MEC sectors to employment

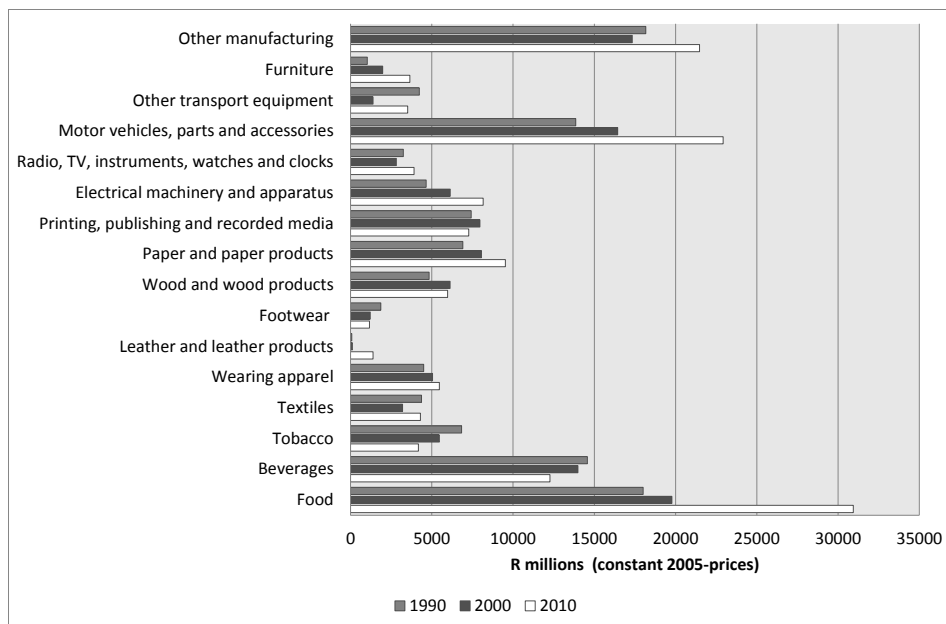


Source: Quantec (RSA Standardised Industry) 2011

The only two non-MEC manufacturing sectors to have experienced significant growth in output and investment in recent years have been food and motor vehicles and parts. For the latter, this has been a direct outcome of the government's Motor Industry Development Program (MIDP) which has led to increased investment in the sector since 1995 (figure 8). The expansion of the leather industry is also connected to the growth in motor vehicles and parts as the sector provided inputs into vehicle interiors. Food sector expansion relates to the growing role of domestic consumption and the increasing concentration and expansion of the four big retail chains: Pick and Pay, Shoprite, Massmart (recently taken over by Walmart) and Spar and their significance in regional food supply chains. Growth in these sectors has been the exception rather than the rule in an otherwise stagnant and failing non-Manufacturing sector. Figure 9 shows that fixed capital stock in a number of manufacturing subsectors has been decreasing since 1990.³⁴

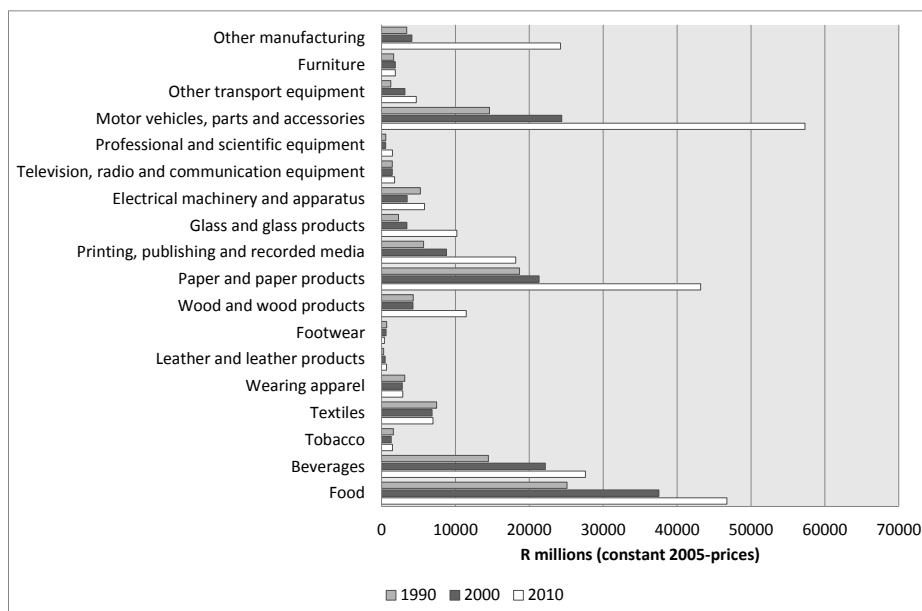
³⁴ The case of textiles and clothing is an example of non-MEC sector experiences during MEC-led industrialisation, the weak industrialisation is visible through declining employment and capital stock.

Figure 7 Value added at factor costs from non-MEC manufacturing sectors 1990, 2000 & 2010



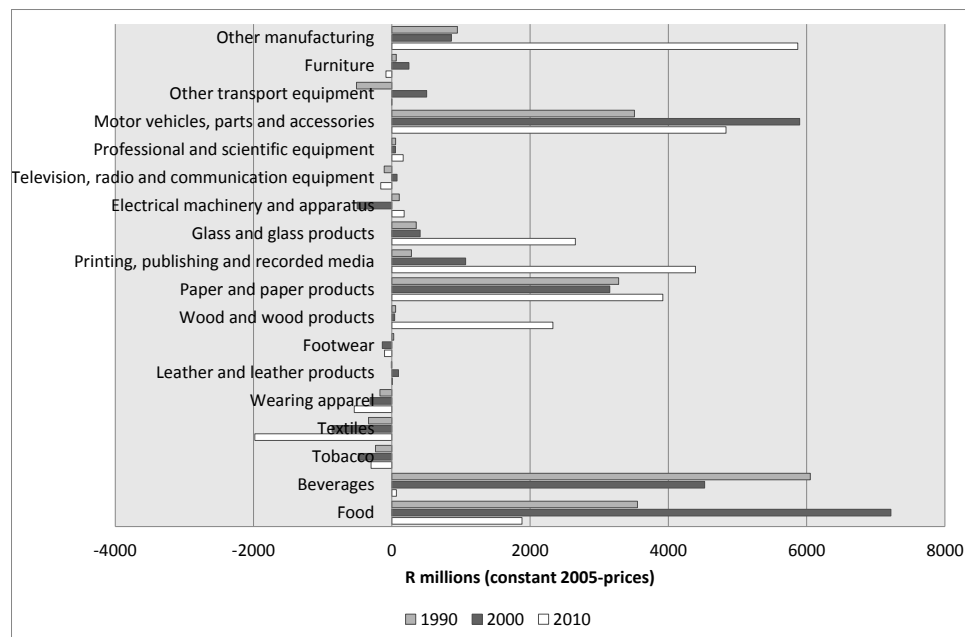
Source: Quantec (RSA Standardised Industry) 2011

Figure 8 Gross domestic fixed investment in non-MEC manufacturing sectors 1990, 2000 & 2010



Source: Quantec (RSA Standardised Industry) 2011

Figure 9 Change in fixed capital stock across non-MEC sectors 1990, 2000 & 2010



Source: Quantec (RSA Standardised Industry) 2011

The focus of this section is on the nature of physical interdependencies, i.e. input-output relationship, between different productive subsectors of the economy. Focus on this vertical dimension of industrial structure allows the internal dynamics of industrial development to be revealed. In particular, the (potential) growth-pull effect of one sector through increasing demand for the output of backward linked sectors. It has been shown that promotion, through industrial policy, of large-scale (heavy) industries directly linked to mining resulted in a set of tightly interdependent and integrated industries that has expanded in isolation from, and at the expense of (labour intensive) consumer goods manufacturing.

Although policy did focus upon the development of linked sectors, the aim of industrial policy in the apartheid period, as is the case put forward for resource-based industrialisation, was not the development of an integrated, diversified and broad based industrial structure. Industrial policy in the early apartheid period was driven by the need to consolidate Afrikaner economic power therefore directed at industries with the greatest growth potential and lent themselves to concentration of capital into large units (see Fine and Rustomjee 1996). The promotion of large scale sectors served the growth and consolidation of Afrikaner capital based utilising the mining sector as a source of demand (as in chemicals and electricity) or the source of cheap inputs (e.g. coal). Similarly, resource based industrialisation is premised upon the exploitation of comparative advantage to diversify vertically into higher value added industrial activities, making the most of growth pull dynamics emerging from within chain demand. Whilst there had been support for labour intensives sectors during the period of industrialisation (as demonstrated by the case of textiles and clothing), this tended to be ad hoc, and took place in the absence of a broader integrated industrial strategy.

Important lessons can be drawn from apartheid era industrial policies and development in assessing both the potential and limitations of resource-based industrialisation strategies in

Africa today. Our contention is that resource-based industrialisation on its own cannot generate the type of self-sustained and inclusive growth dynamics informed by theories of cumulative causation and the experiences of late industrialising countries such as South Korea. To engender inclusive, self-sustaining industrial development, the exploitation of resources and development of linked industries needs to be part of a long-term, evolving, industrialisation programme.

6. Conclusions

This paper has discussed the theoretical underpinnings and policy recommendations of the recent debates around African Industrialisation and industrial policy from the New Structural Economics to Global Value Chain Development, Vertically Specialised Industrialisation and Resource-Based Industrialisation. While the debate draws, albeit selectively, on the original conceptualisation of manufacturing as an engine for (long-run) growth (see Lewis 1954, Myrdal 1957, Kaldor 1967), focus has been on the microeconomic processes that underpin industrial development, such as economies of agglomeration, input-output linkages, technology transfer, development of skills, learning and upgrading, without connecting them to the dynamic, macroeconomic and systemic process of industrial development and economic growth. In this way industrial policies have not been conceived of as a gambit of diverse policies working together to bring about an integrated and diversified industrial structure capable of generating high levels of employment.

Arguments for industrial policy in developing countries in the current epoch have been based upon an apparent new imperative to raise competitiveness of domestic industries owing to heightened global competition. In contrast to the industrial policies during the period of rapid industrialisation characterised as breaking comparative advantage³⁵, or government strategy as one of “getting prices wrong” as observed by Amsden (2001), NSE and GVCD³⁶ conform to the notion of comparative advantage with state intervention confined to assisting domestic firms in entering global value chains and upgrading along them.

While global value chain development can potentially increase value addition and promote the growth of manufacturing as a share of GDP, and in doing so, create jobs, it is our contention that such a strategy is limited if the aim is to bring about a broad based, diversified and integrated economy that has the capacity not only to absorb labour but to lead to rising wages and demand in a self-reinforcing, cumulative and causal process. Gains made along value chains are likely to be confined to said chains. Even within chains, results for successful entry and upgrading by developing country firms have been mixed (Bair 2011). Our account of historical industrial development in South Africa also points to limitations of such strategies in terms of developing a skewed industrial structure with limited potential for labour absorption. Within such a strategy, equalising economic growth can only be achieved if the gains from growth can be harnessed by the state for radical redistributive and social policies.

³⁵ See Wade 2012 and Chang 2002

³⁶ Resource based industrialisation in particular.

If the aim of industrial policy is to develop an industrial structure that supports manufacturing led and equalising growth, then one can learn much from revisiting the theories of classical political economy as well as the historical experiences of countries during periods of rapid economic growth and explore these in relation to the specificities of the contemporary global economy. While we welcome the return of the role of the state in industrial development in recent debates, we would argue that this role, limited to 'support for the market' in a given global division of labour, is insufficient and misleading. Heightened global competition and the existence of powerful multinational corporations need not condemn governments to a policy of making the most of a difficult (competitive) situation. If political will were to warrant it, there can be policy alternatives for the creation of equitable economic growth through industrialisation.

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